



Ambulance handbook derived from Skylab inflight medical system now is used by paramedics in Houston along with a portable ambulance module, also a space spinoff. The module, shown here in a street lifesaving situation, is a self-contained cardiac diagnostic and communications system.

pressure as its source of power instead of electricity or fuel. The device originally was created by Rockwell International's Rocketdyne division as an underwater tool for divers. It was a direct spinoff of the turbo-pump technology Rocketdyne developed as a major contractor for space missions. After signing a licensing agreement with Rocketdyne, Aramco last year established Space Spin-Offs Inc. in New Orleans to manufacture the hydrotool.

In a prototype unit, an efficient water-powered turbine drives an 8-in.-diameter grinding disk at 6,600 rpm. The exhaust water cools the disk and work-piece, quenching any sparks produced by the butting head. At maximum power the tool easily cuts through quarter-inch steel plate.

Coupled to a municipal water supply or other source producing 100 to 150 psi at a flow of about 100 gallons a minute, the water turbine becomes a safer tool for other uses too. For instance, adapter heads for chain saws, impact wrenches, heavy-duty drills, and power hack saws can be fitted to the hydrotool.

Lead-poison detection

Electro-optical expertise gained in NASA contracts helped Whittaker Corp.'s Space Sciences division to develop an instrument to mass-screen for lead poisoning.

The device is a portable and highly sensitive fluorometer that detects protoporphyrin in whole blood. Free corpuscular porphyrins occur as a very early effect of lead ingestion. The instrument also detects lead in urine, used to confirm the blood tests. The test is inexpensive and can be applied by relatively unskilled personnel.

While lead poisoning may not appear to be a large problem, the fact is that at least 400,000 U.S. children are poisoned by lead every year—some 200 resulting in death. Eating old, chipped, lead-based paint accounts for much of the problem, especially in ghettos among babies and small children. In areas where industrial wastes, mining, and lead smelters are prevalent, mass screening also is desirable.

A similar Whittaker fluorometry device called "drug screen" can measure morphine and quinine in urine much faster and cheaper than other methods.